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IS : 7836 - 1975

*Indian Standard*  
SPECIFICATION FOR  
EDIBLE LOW-FAT SOYA FLOUR

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**BUREAU OF INDIAN STANDARDS**  
**MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG**  
**NEW DELHI 110002**

# *Indian Standard*

## SPECIFICATION FOR

### EDIBLE LOW-FAT SOYA FLOUR

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**AMENDMENT NO. 1      DECEMBER 1978**  
**TO**  
**IS : 7836-1975 SPECIFICATION FOR EDIBLE**  
**LOW-FAT SOYA FLOUR**

**Addenda**

( *Page 4, clause 2.1.1* ) — Add the following clause after 2.1.1:

**'2.1.2** Edible low-fat soya flour shall be free from harmful foreign oilcakes, such as castor and *MAHUA* when tested according to the methods prescribed in 11 and 12 respectively of IS : 7874 ( Part I )-1975§. It shall also be free from *NEEM* cake and other foreign materials, such as jaggery and molasses.'

· ( *Page 4, foot-note with ' ‡ ' mark* ) — Add the following new foot-note after ' ‡ ' mark:

**'§Methods of sampling and tests for animal feeds and feeding stuffs: Part I General methods.'**

( AFDC 37 )

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Reprography Unit, BIS, New Delhi. India

**AMENDMENT NO. 2 FEBRUARY 2004**  
**TO**  
**IS 7836 : 1975 SPECIFICATION FOR**  
**EDIBLE LOW - FAT SOYA FLOUR**

[ *Page 5, Table 1, Sl No. (viii), col 2* ] — Substitute 'Hexane (food grade), ppm, Max' for 'Residual solvent, ppm, Max'.

[ *Page 5, Table 1, Sl No. (viii), col 3* ] — Substitute '10' for '170'.

[ *Page 5, Table 2, Sl No. (iii), col 2* ] — Substitute 'Salmonella bacteria per 25 g' for 'Salmonella bacteria'.

( FAD 16 )

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Reprography Unit, BIS, New Delhi, India



# *Indian Standard*

## SPECIFICATION FOR EDIBLE LOW-FAT SOYA FLOUR

### 0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 30 October 1975, after the draft finalized by the Nutrition Sectional Committee had been approved by the Agricultural and Food Products Division Council.

**0.2** During the past few years, an increasing area has gradually been brought under soyabean cultivation and this is expected to go up further in years to come as crop rotations are further diversified. Soyabean protein is rich in lysine, an essential amino acid, and can therefore serve as a nutritionally useful ingredient in blended and processed foods. Proteins from soyabean are now being manufactured in the country in many forms, such as high-fat, medium-fat, and low-fat flours and protein isolates and there is scope for developing others. With a view to enable the manufacturers of various types of soya flours in optimizing their operations, as well as to help the users of such flours in the manufacture of processed food, this standard is being issued.

**0.3** Separate Indian Standards are being issued to cover the requirements of full-fat, medium-fat, low-fat edible soya flours and of soya protein isolates. As such the two Indian Standards IS : 5275-1969\* and IS : 5276-1969† are being withdrawn.

**0.4** To get the best out of soya products which are used as a protein source, they should be heat treated. Varying the degrees of heat treatment of soya flours progressively and simultaneously raises the protein efficiency or quality, inactivates such enzymes as trypsin inhibitors, urease, lipoxigenases, and lowers the nitrogen solubility index. Such heat treatment can be applied to all soya protein products, whether full-fat, medium-fat, low-fat or isolates. Moist heat treatment destroys the several anti-nutritional enzymes present in soyabeans and reduces their activity. Dry heat treatment raises the quality of the protein present, but overheating will lower it. The optimum kind and degree of heat treatment to be applied to soya proteins for use in any particular food product, therefore, depends on the nature and extent of heating which subsequent manufacture of that food

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\*Specification for edible soya flour (expeller pressed).

†Specification for edible soya flour (solvent extracted).

product entails if good protein quality is to be ensured. In order to help food manufacturers, guidelines recommending the usage of edible soya flour is given in Appendix A.

**0.5** This standard has been formulated in close collaboration with the Protein Foods and Nutrition Development Association of India. In the preparation of this standard, due consideration has been given to the provisions of the Prevention of Food Adulteration Act, 1954, and the Rules framed thereunder. However, this standard is subject to the restrictions imposed under these rules, wherever applicable.

**0.6** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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## **1. SCOPE**

**1.1** This standard prescribes the requirements and the methods of sampling and test for edible low-fat soya flour.

## **2. REQUIREMENTS**

**2.1 Description** — Edible low-fat soya flour shall be obtained from clean, sound, healthy soyabeans by a process of cracking, dehulling, solvent extraction with food-grade hexane (*see* IS : 3470-1966†) and grinding. It shall be in the form of coarse or fine powder, or grits; white to creamy-white in colour; of uniform composition; and free from rancid odour, extraneous matter and insect, rodent or fungal infestation. The material shall be free from any artificial colouring matter or flavouring agents.

**2.1.1** The particle size of the material shall be as agreed to between the purchaser and the vendor.

**2.2** The material shall also conform to the requirements given in Table 1.

**2.3 Bacteriological Requirements** — The edible low-fat soya flour shall be tested periodically to comply with the requirements given in Table 2.

**2.4 Premises** — Place where edible low-fat soya flour shall be manufactured, packed and stored, and the equipment used shall be maintained under hygienic conditions (*see* IS : 2491-1972‡).

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\*Rules for rounding off numerical values (*revised*).

†Specification for hexane, food-grade.

‡Code for hygienic conditions for food processing units (*first revision*).

**TABLE 1 REQUIREMENTS FOR EDIBLE LOW-FAT SOYA FLOUR**

(Clause 2.2)

SL No.	CHARACTERISTIC	REQUIRE- MENT	METHOD OF TEST, REF TO APPENDIX IN	
			IS : 4684- 1975*	IS : 4876- 1968†
(1)	(2)	(3)	(4)	(5)
i)	Moisture, percent by mass, <i>Max</i>	9.0	B	—
ii)	Protein (on dry basis), percent by mass, <i>Min</i>	40	C	—
iii)	Total ash (on dry basis), percent by mass, <i>Max</i>	7.2	D	—
iv)	Acid-insoluble ash (on dry basis), percent by mass, <i>Max</i>	0.4	E	—
v)	Fat (on dry basis), percent by mass, <i>Max</i>	1.5	F	—
vi)	Crude fibre (on dry basis), percent by mass, <i>Max</i>	4.2	H	—
vii)	Aflatoxin, $\mu\text{g/kg}$ , <i>Max</i>	30	J	—
viii)	Residual solvent, ppm, <i>Max</i>	170	—	A

\*Specification for edible groundnut flour (expeller pressed) (*first revision*).

†Specification for edible cottonseed flour (solvent extracted).

**TABLE 2 BACTERIOLOGICAL REQUIREMENTS FOR EDIBLE LOW-FAT SOYA FLOUR**

(Clause 2.3)

SL No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST, REF TO
(1)	(2)	(3)	(4)
i)	Total bacterial count per g, <i>Max</i>	50 000	IS : 5402-1969*
ii)	Coliform bacteria per g, <i>Max</i>	10	IS : 5401-1969†
iii)	Salmonella bacteria	Nil	IS : 5887-1970‡

\*Method for plate count of bacteria in foodstuffs.

†Methods for detection and estimation of coliform bacteria in foodstuffs.

‡Methods for detection of bacteria responsible for food poisoning and food-borne diseases.

### **3. PACKING AND MARKING**

**3.1 Packing** — The material shall be packed in polyethylene or polyethylene-lined jute bags, or in clean tinsplate containers. When packed in bags, the mouth of each bag shall be either machine- or hand-stitched. If hand-stitched, the mouth shall be rolled over and stitched. Stitches shall be in two cross-rows with at least 14 stitches in each row.

**3.2 Marking** — The following particulars shall be marked or labelled on each container:

- a) Name of the product,
- b) Name and address of the manufacturer,
- c) Batch or code number,
- d) Net mass,
- e) Nitrogen solubility index, and
- f) Date of manufacture.

**3.2.1** Each container may also be marked with the Standard Mark

NOTE — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

### **4. SAMPLING**

**4.1** Representative samples of the material shall be drawn and tested for conformity to this standard as prescribed in IS : 5315-1969\*.

### **5. TESTS**

**5.1** Tests shall be carried out as prescribed in 2.2 and col 4 and 5 of Table 1 and col 4 of Table 2.

**5.2 Quality of Reagents** — Unless otherwise specified, pure chemicals and distilled water (*see* IS : 1070-1960†) shall be employed in the tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the test results.

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\*Methods of sampling for milled cereals and pulses products.

†Specification for water, distilled quality (*revised*).

**APPENDIX A**

( Clause 0.4 )

**GUIDELINES FOR PRODUCT USAGE****A-1. SELECTION OF EDIBLE LOW-FAT SOYA FLOUR**

**A-1.1** For selecting right quality of the material depending on the end use of the product, guidelines for protein and enzyme quality are given in Table 3.

**TABLE 3 GUIDELINES FOR SELECTION OF EDIBLE LOW-FAT SOYA FLOUR FOR SPECIFIC END USES**

SL No.	PRODUCTS IN WHICH FLOUR CAN BE USED	RELATIVE PROTEIN EFFICIENCY	NITROGEN SOLUBILITY INDEX	TRYPSIN INHIBITOR ACTIVITY, UNITS	UREASE TEST DIFFERENCE IN pH
(1)	(2)	(3)	(4)	(5)	(6)
i)	Products involving moist cooking (bread, biscuits, buns, cakes, extruded foods)	55 to 66	80 to 60	75 <i>Max</i>	0.6 to 0.9
ii)	Products involving dry cooking or roasting, and which will not require further cooking, or will only be lightly cooked, before consumption (protein mixes or powders, protein-fortified cereals and flours, fried snacks)	65 to 75	60 to 40	55 <i>Max</i>	0.3 <i>Max</i>
iii)	Products involving simple mixing of ingredients with little or no cooking, and which will be consumed without any cooking (protein powders or mixes, baby foods, animal feeds)	80	30 <i>Max</i>	40 <i>Max</i>	0.05 <i>Max</i>

**NOTE** — Relative protein efficiency is expressed as percentage of the full potential of soya protein.

**A-2. TESTS**

**A-2.1** Determination of nitrogen solubility index, trypsin inhibitor activity and urcase activity shall be carried out according to the methods prescribed in Appendices B, C and D of IS : 7837-1975\*.

\*Specification for edible full-fat soya flour.

**IS : 7836 - 1975**

**A-2.2 Preparation of Material for Tests** — Prepare the material for the tests by grinding 25 g of the sample in an impact type laboratory mill with a rotor speed of about 10 000 rpm (but not exceeding 16 000 rpm), so that at least 95 percent by mass of it passes through a 150-micron IS Sieve (*see* IS : 460-1962\*). Avoid heat damage by grinding in stages of a few seconds each.

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\*Specification for test sieves (*revised*).

# BUREAU OF INDIAN STANDARDS

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Telegrams: Manaksanstha  
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